

## CLAIMS

1. A blood treatment system, comprising:

a blood treatment machine with first and second opposing portions spaced apart to form a gap therebetween;

said flow balancing machine having at least one actuator and at least one sensor disposed on at least said first opposing portion;

a support on attached to said blood treatment machine;

a cartridge panel holding a fluid circuit, said fluid circuit having at least one portion to be aligned with said at least one actuator and at least another portion to be aligned with said at least one sensor prior to engagement therebetween;

said support being configured to permit said cartridge panel to be rested thereupon when said cartridge panel is inserted in said gap;

said support and said cartridge panel being configured such that said fluid circuit at least one and at least another portions are aligned respectively with said at least on actuator and said at least one sensor;

said flow treatment machine first and second opposing portions being movable with respect to each other to close around said cartridge thereby to cause said at least one actuator to engage said at least one portion and said at least one sensor to engage said at least another portion.

2. A system as in claim 1, wherein said at least one actuator includes multiple peristaltic pumps.

3. A system as in claim 1, wherein said first and second opposing portions are connected by rails at bottom ends thereof and said support includes at least a portion of said rails.
4. A system as in claim 1, wherein:
  - said first and second opposing portions are movable in a single motion;
  - said fluid circuit at least one portion includes at least three tube portions configured to be engaged with peristaltic pumps;
  - said at least one actuator includes at least three peristaltic pumps;
  - whereby said tube portions and said peristaltic pumps are caused to be engaged by a movement of said first and second opposing portions.
5. A system as in claim 1, wherein said cartridge panel includes cutouts to expose said at least one and said at least another portions to said at least one actuator and said at least one sensor, respectively.
6. A system as in claim 1, wherein said blood treatment machine is configured to substantially equalize a quantity fluid removed from a patient with a quantity of fluid added to a patient during a blood treatment.

7. A blood treatment system, comprising:

a blood treatment machine with first and second opposing portions spaced apart to form a gap therebetween;

said flow balancing machine having actuators and sensors facing said gap and disposed on at least said first opposing portion;

a control panel located on one of said first and second portions;

a support on attached to said blood treatment machine, said cartridge panel to be rested thereupon when said cartridge panel is inserted in said gap;

a cartridge panel holding a fluid circuit, said fluid circuit having at least one portion to be aligned with said actuators and at least another portion to be aligned with said sensors such that when said cartridge panel is rested on said support, said sensors and actuators are so aligned;

said flow treatment machine first and second opposing portions being movable with respect to each other to close around said cartridge thereby to cause said actuators to engage said at least one portion and said sensors to engage said at least another portion.

8. A system as in claim 1, wherein said actuators includes multiple peristaltic pumps.

9. A system as in claim 1, wherein said first and second opposing portions are connected by rails at bottom ends thereof and said support includes at least a portion of said rails.

10. A system as in claim 1, wherein:
- said first and second opposing portions are movable in a single motion;
  - said fluid circuit at least one portion includes at least three tube portions configured to be engaged with peristaltic pumps;
  - said actuators include at least three peristaltic pumps;
  - whereby said tube portions and said peristaltic pumps are caused to be engaged by a movement of said first and second opposing portions.
11. A system as in claim 1, wherein said cartridge panel includes cutouts to expose said at least one and said at least another portions to said at least one actuator and said at least one sensor, respectively.
12. A system as in claim 1, wherein said blood treatment machine is configured to substantially equalize a quantity fluid removed from a patient with a quantity of fluid added to a patient during a blood treatment.
13. A blood treatment system, comprising:
- a blood treatment machine with first and second opposing portions spaced apart to form a gap therebetween;
  - said flow balancing machine having actuators and sensors facing said gap and disposed on at least said first opposing portion;
  - a control panel located on one of said first and second portions;

a support on attached to said blood treatment machine, said cartridge panel to be rested thereupon when said cartridge panel is inserted in said gap;

a cartridge panel holding a fluid circuit, said fluid circuit having at least one portion to be aligned with said actuators and at least another portion to be aligned with said sensors such that when said cartridge panel is rested on said support, said sensors and actuators are so aligned;

said flow treatment machine first and second opposing portions being movable with respect to each other to close around said cartridge thereby to cause said actuators to engage said at least one portion and said sensors to engage said at least another portion.

said first and second opposing portions are movable in a single motion;

said fluid circuit at least one portion includes at least three tube portions configured to be engaged with peristaltic pumps;

said actuators include at least three peristaltic pumps;

whereby said tube portions and said peristaltic pumps are caused to be engaged by a movement of said first and second opposing portions.

14. A method of performing blood treatment using a blood treatment device having first and second portions that are brought together around a fluid circuit holder, comprising the steps of:

positioning a fluid circuit holder within a slot defined by said first and second portions'

positioning said fluid circuit holder on a support of said blood treatment device;

said second step of positioning being effective to align components of said fluid circuit with corresponding actuators and sensors of said blood treatment machine;

closing said slot by mutually moving said first and second portions together;

said step of closing being effective to engage said fluid circuit components with said corresponding actuators and sensors of said blood treatment machine.

15. A method as in claim 14, wherein said step of closing includes rotating a clamp handle connected between said first and second portions which brings them together.